DG-200 GPS Data Logger

User Manual

Version: 1.1

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Chapter 1：Function and Specification

Function and Feature

- DATA LOGGER for recording the traveled path data
- Compact and portable, 70mm x 40mm x 9mm,36 g
- Built-in 4M bytes memory, could save up to 190,000 points (with location/ time/ date/ speed)
- Built-in high efficiency Li-Ion battery, free from changing batteries.
- Easy and convenient operation by power button
- Press to save that point, you could save the points anywhere
- Mini USB port for transmitting data and charging
- Lanyard for hanging decoration object
- GPS fix status shown by LED
- Battery power low shown by LED
- Not enough memory for saving location shown by LED
- Charging shown by LED
- Quick charging function
- Easy PC Utility has the following function:
  - Uploading the traveled path data
  - Change the recorded interval
  - Update setting
  - Delete the recorded data
  - Display the traveled path data on map
    1. Save into KML format for displaying on Google Earth
    2. Display on Google Map
    3. GPX format
    4. CSV format

Specifications

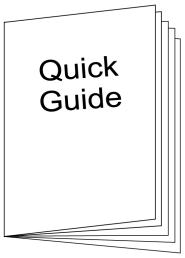
Electronics	
GPS Chipset	SiRF StarIII
GPS Antenna	Built-in GPS antenna
Operation Time	Up to 20 hours
Charging Time	3 hours
Charging port	Mini USB port @350mA
Power Button Function	
Turn on/ turn off	Press and hold for 3 seconds to turn on/ turn off
Save	Under power-on status, short click to save the GPS location data
LED	
GPS Status (Green)	On : no GPS fix Flash : GPS fixed
Memory Status (Blue)	On : Memory is full Keep flashing : Memory used up to 80% Flash once : Saved the manually recorded point
Power Status (Red)	On : Power low
Charging Status (Orange)	On : Charging (Turn to be off after fully charged)
Temperature	
Operation Temperature	-20°C to 60°C 0°C to 45°C while charging
Storage Temperature	-20°C to 70°C
Humidity	5% to 95% non-condensing
Battery	
Battery Capacity	Li-Ion battery 700mA
MECHANISM	
Size	70mm x 40mm x 9mm (2.7” x 1.5” x 0.4”)
Weight	36 g
Certification	
FCC	USA (Covers requirements for CANADA ICES-003)
CE	Europe
BSMI	Taiwan

GPS Specification

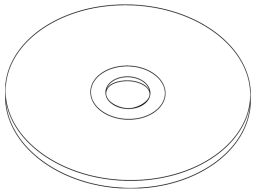
Electronics	
GPS chipset	SiRF StarIII
Frequency	L1， 1575.42 MHz
C/A Code	1.023 MHz chip rate
Channel	20 channel all-in-view tracking
Sensitivity	Tracking:-159dBm
Accuracy	
Horizon Position	10 Meter，2D RMS 1-5 Meter，2D RMS，WAAS
Speed	0.1meter/second
Time	1 micro-second synchronized to GPS time
Datum	
Datum	Default: WGS-84
Get GPS fix	
Hot Start	1 sec., average
Warm Start	38 sec., average
Cold Start	42 sec., average
Re- start	Average 0.1 sec.
Dynamic Condition	
Acceleration limit	Less than 4g
Height limit	Up to 18,000 meters (60,000 knots)
Speed limit	Up to 515 meter/second (1,000 knots)
Jerk Limit	20 m/sec**3
Accuracy	
Horizontal Position	10 meters， 2D RMS 1-5 meters 2D RMS， WAAS corrected
Velocity	0.1 m/sec
Time	1 micro-second synchronized to GPS time
Antenna	
GPS antenna	18 X 18 mm， Patch Antenna

Accessories

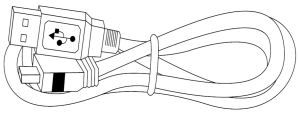
DG-200 Main Unit



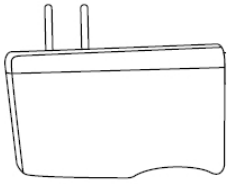
Quick Guide



CD



USB Cable

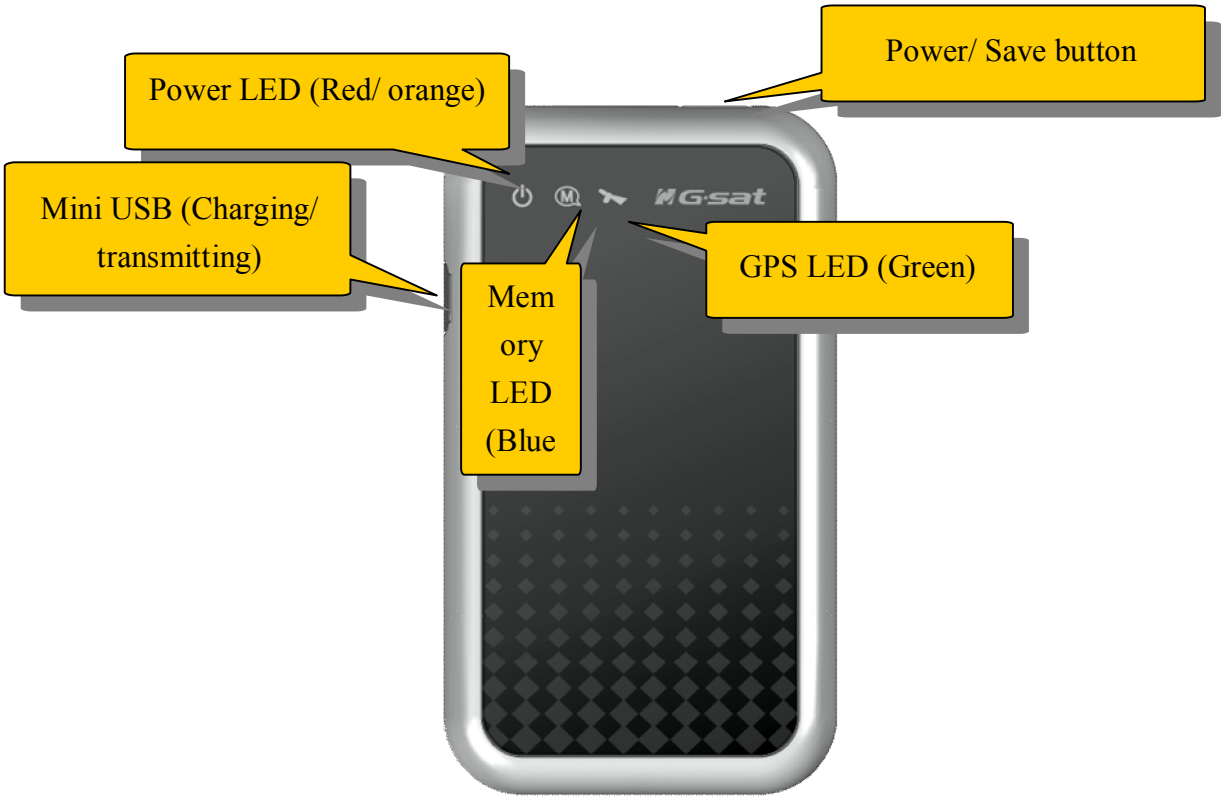


Charger (Option)

Hang Tape (Option)

Note：
If any accessories is lost or damaged, please contact with your local dealer.

Appearance



Chapter 2：Start to Use

DG-200 Operation

1. Press and hold the power button for three seconds to turn on DG-200. Then you would see GPS LED on.
2. After getting GPS fix and starting to record traveled path, GPS LED would flash.
3. When DG-200 could get GPS fix, you could short click power button to save the present location to inner memory flash. You could see memory LED flash once to show the present location is saved. (You could not save location if it could not get GPS fix.

DG-200 Power Button

LED status after turning on device

DG-200 Power Off

Under power-on status, press and hold power button for three seconds to turn off device. GPS LED would be off after device is powered off.

DG-200 Connection with PC

1. Connect DG-200 and PC by USB cable.
2. Turn on DG-200 PC Utility.
3. Run “PC Utility” program and you could use the functions of the program.

USB Cable connection

Chapter 3: DG-200 PC Utility Installation

3-1 PC Utility Function

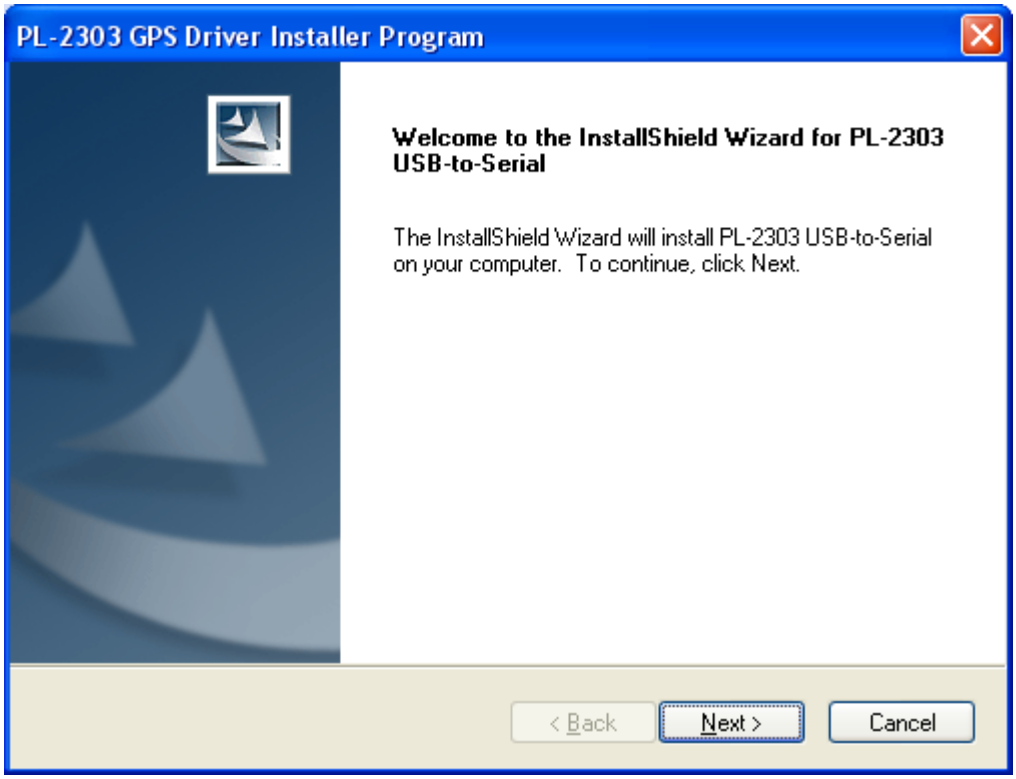
Uploading the recorded data	Upload the traveled path data into PC and save it
Saving data into different format	(1) KML format for Google Earth (2) Show on Google Maps (3) GPX format file。 (4) CSV format file
Setting the recorded data	location, time, date, height, speed
Setting the recording interval	Saving interval (time or distance)

3-2 Install PC Utility and USB Driver in PC

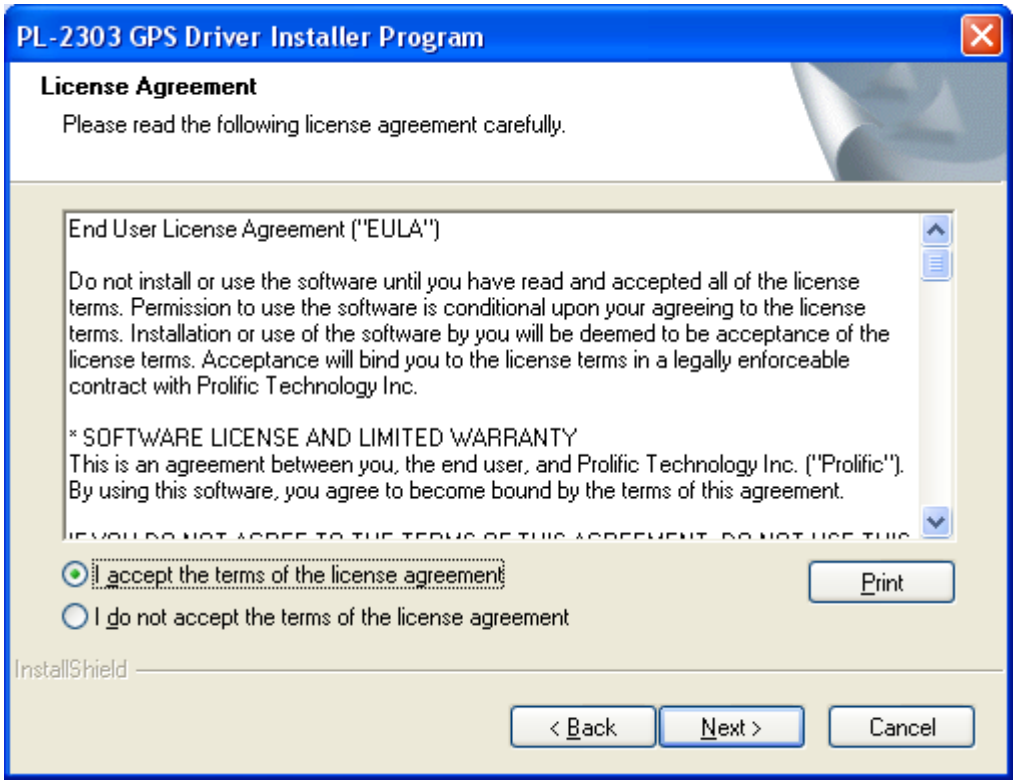
3-2-1 Install USB Driver

Put product CD into CD ROM.

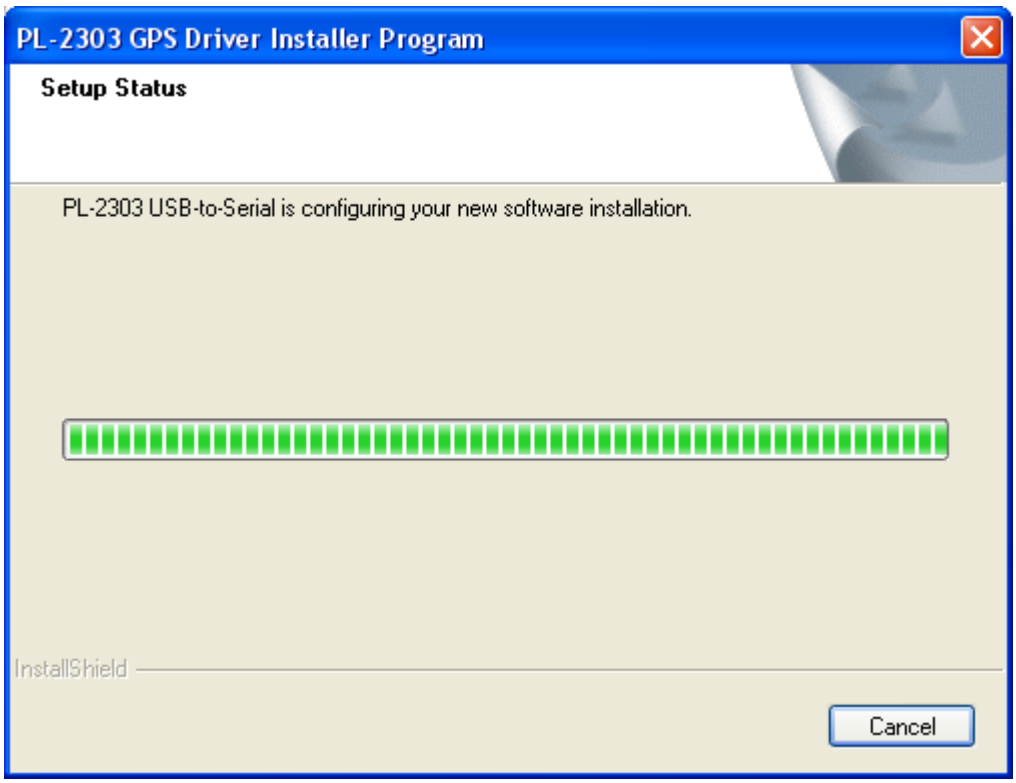
Click on “Install Driver” button. You would see the screenshot as below.



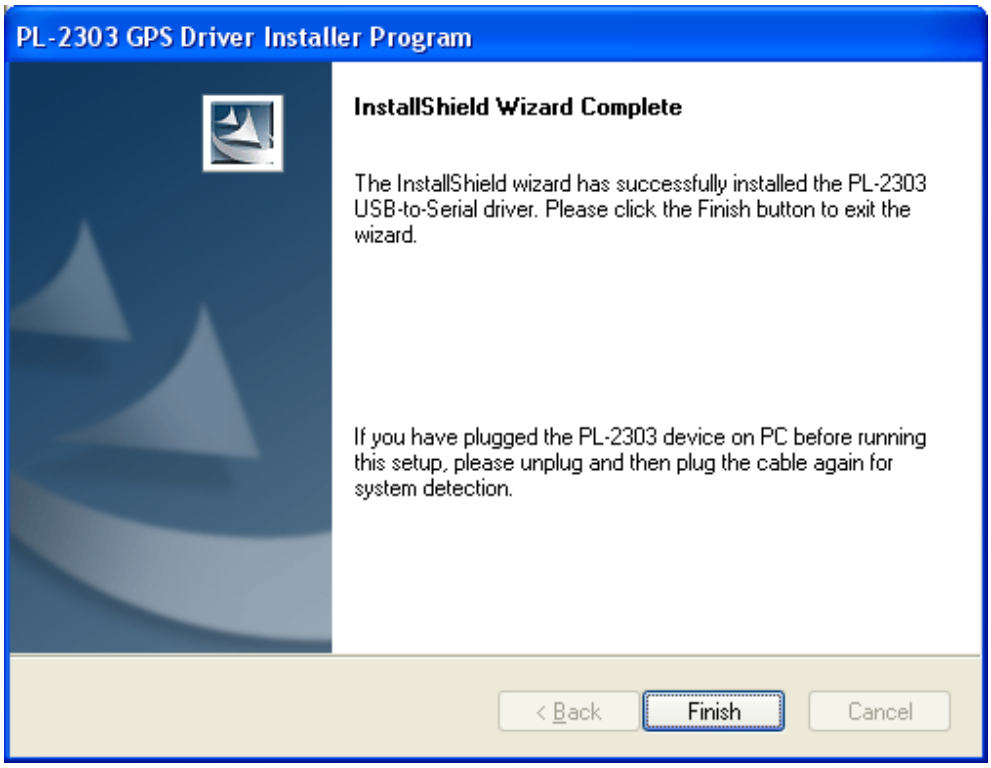
Click on “Next.”



Choose “I accept..” and click on “Next” button.



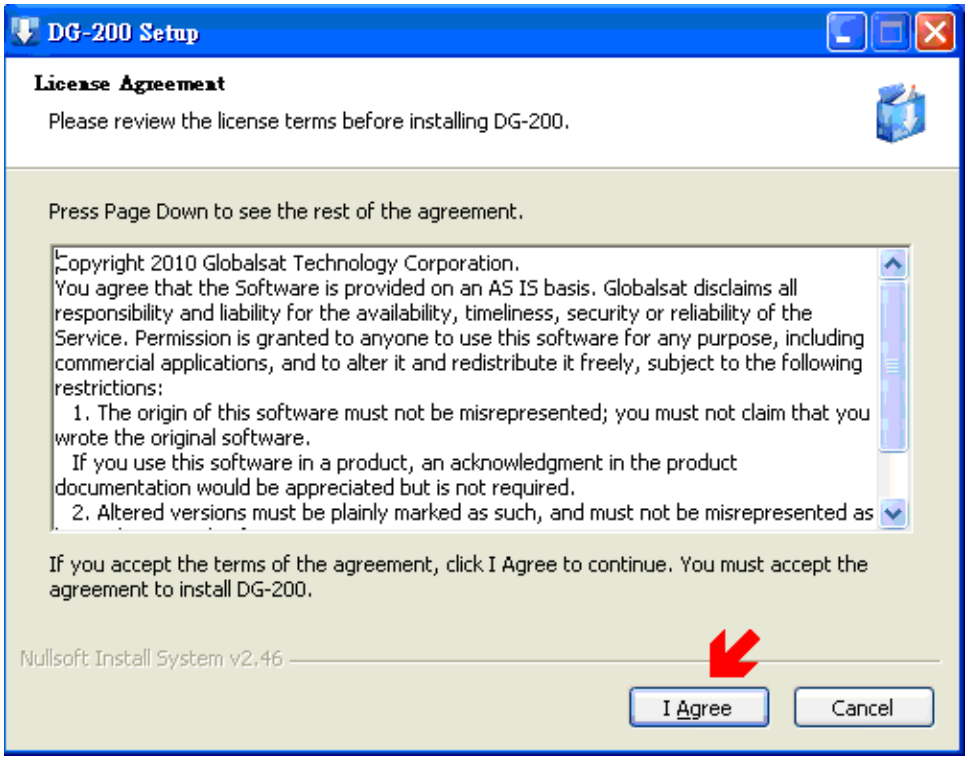
Click on “Finish” button.



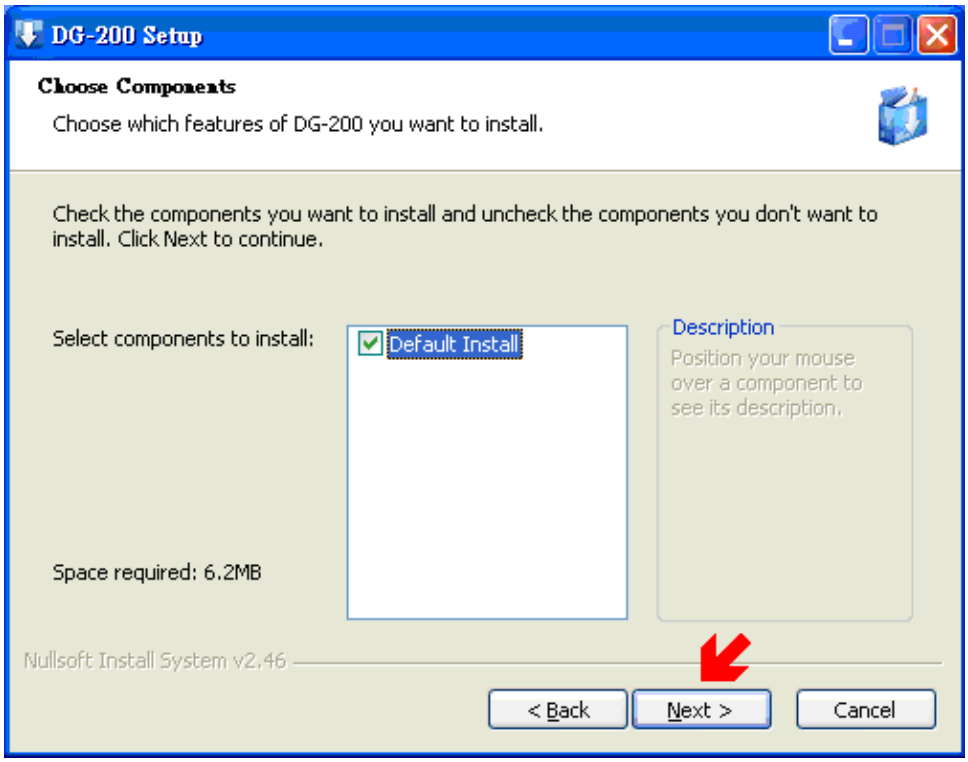
3-2-2 Install PC Utility

Put CD into CD ROM. And click

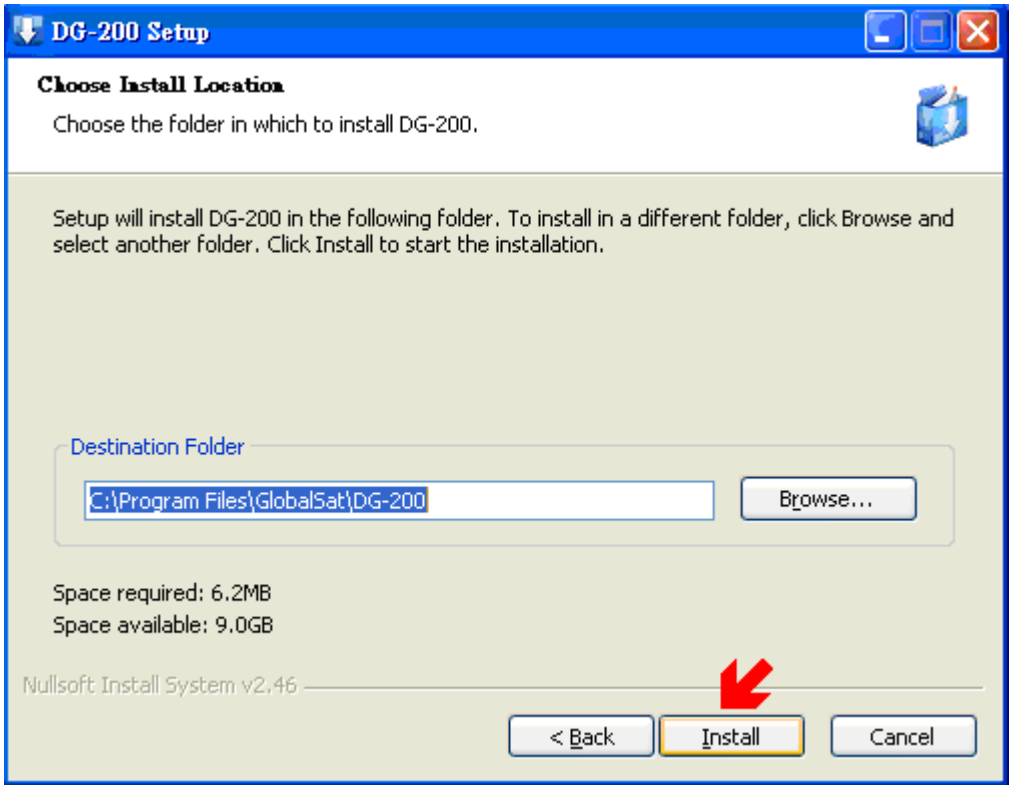
Choose I Agree.



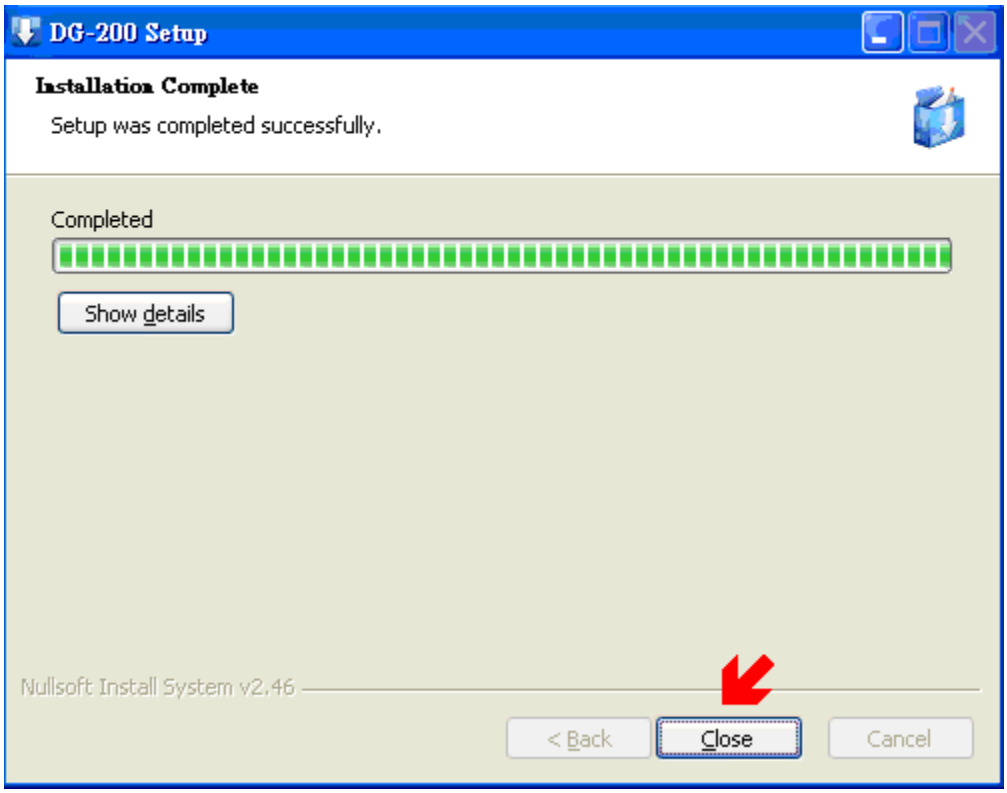
Click on Next button.



If you do not want to install the PC utility in the default location, please click the "**Browse**" button and direct to the location of you'd like to install the utility. Otherwise, just click on the "**Install**" button.

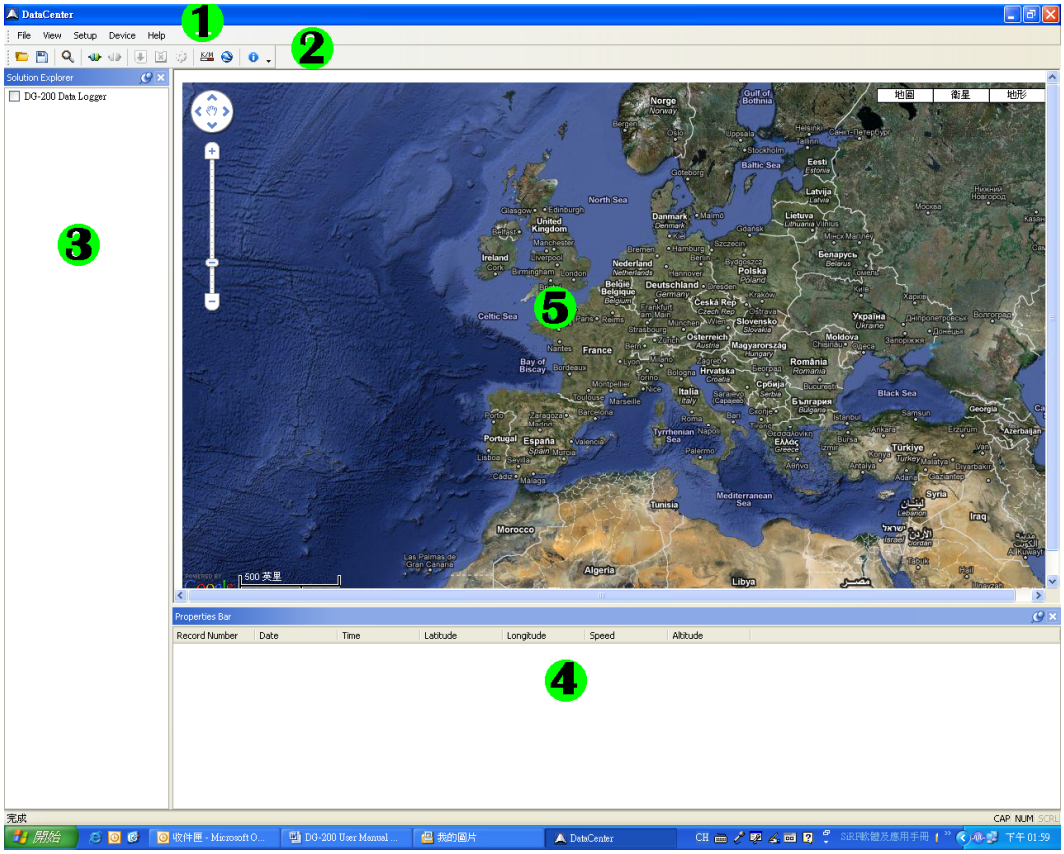


Click on "Close" button when you see the screenshot below.



Chapter 4：DG-200 PC Utility Operation

4-1 Main Screen Introduction



2 Tool bar：

Open the file in the PC

Save data to PC

Filter function

Connect DG-200 with PC

Disconnect DG-200 from PC

Upload DG-200 traveled data

Delete all data in DG-200

Set DG-200 function

Switch to knots or meter

Run Google Earth

PC Utility version

❸Traveled path data list：

List the traveled path data loaded from DG-200 or from file

❹Traveled path information field：

Show the information of traveled data, including date, time, longitude, latitude, speed, and height (according to the DG-200 data setting)

❺Google Map Display:

Show the selected point of the traveled data list on Google Map

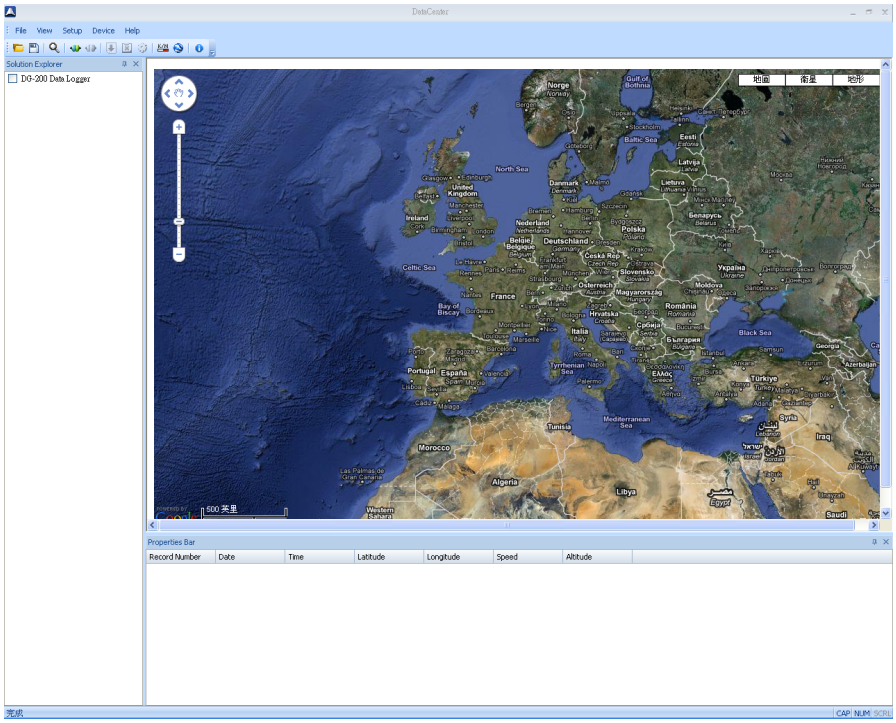
4-2 PC Connection Setting

Start to connect

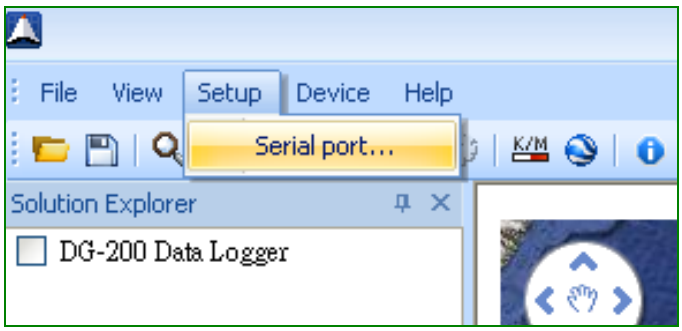
1. Power on DG-200. Connect DG-200 with PC by USB cable.

2. Double click the icon

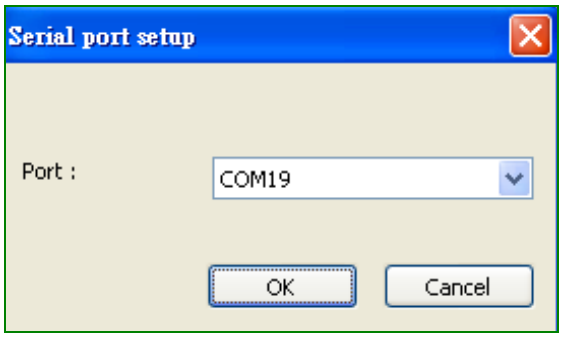
Or select **[Start]→[Programs]→[DG200]→DG-200**
3. You would see the main screen of DG-200 PC Utility as the screenshot below.



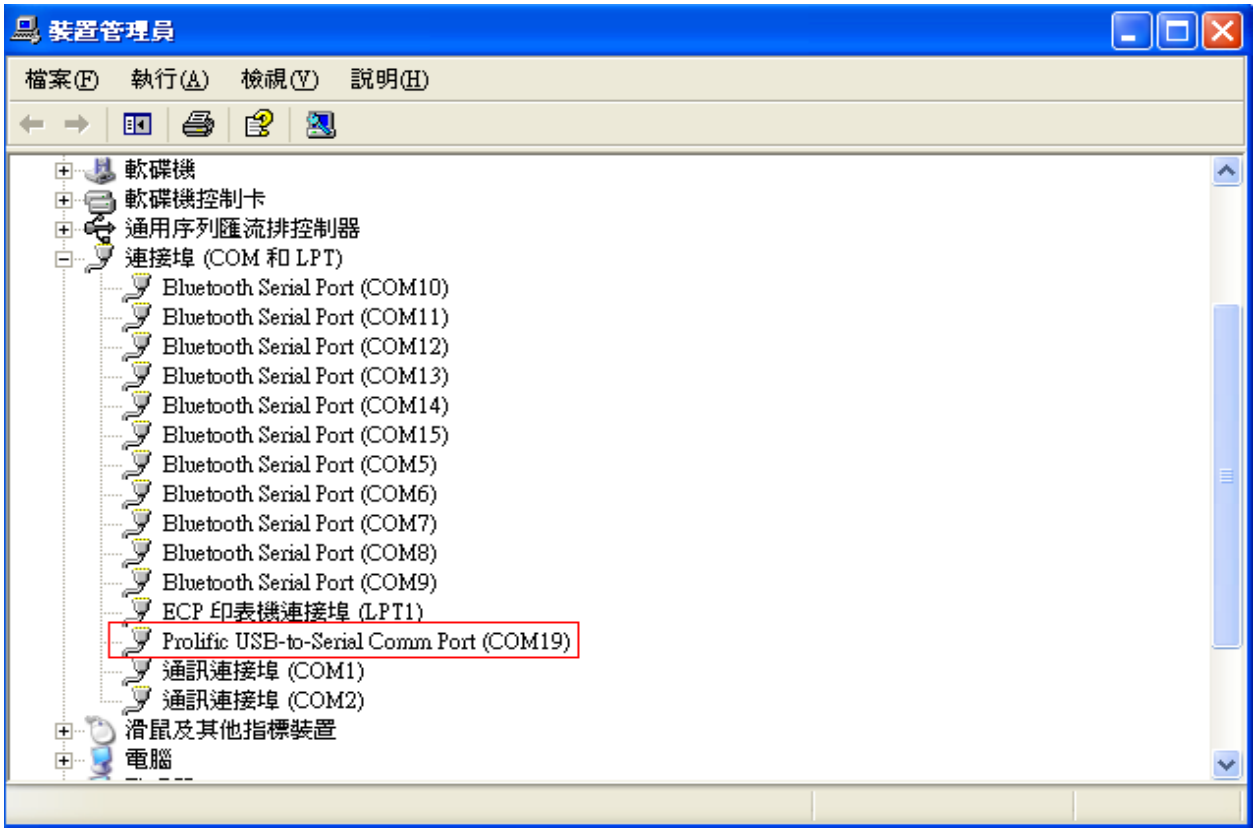
4. Go to **[Setup]→[Serial port]**



5. Select the COM port that connect DG-200

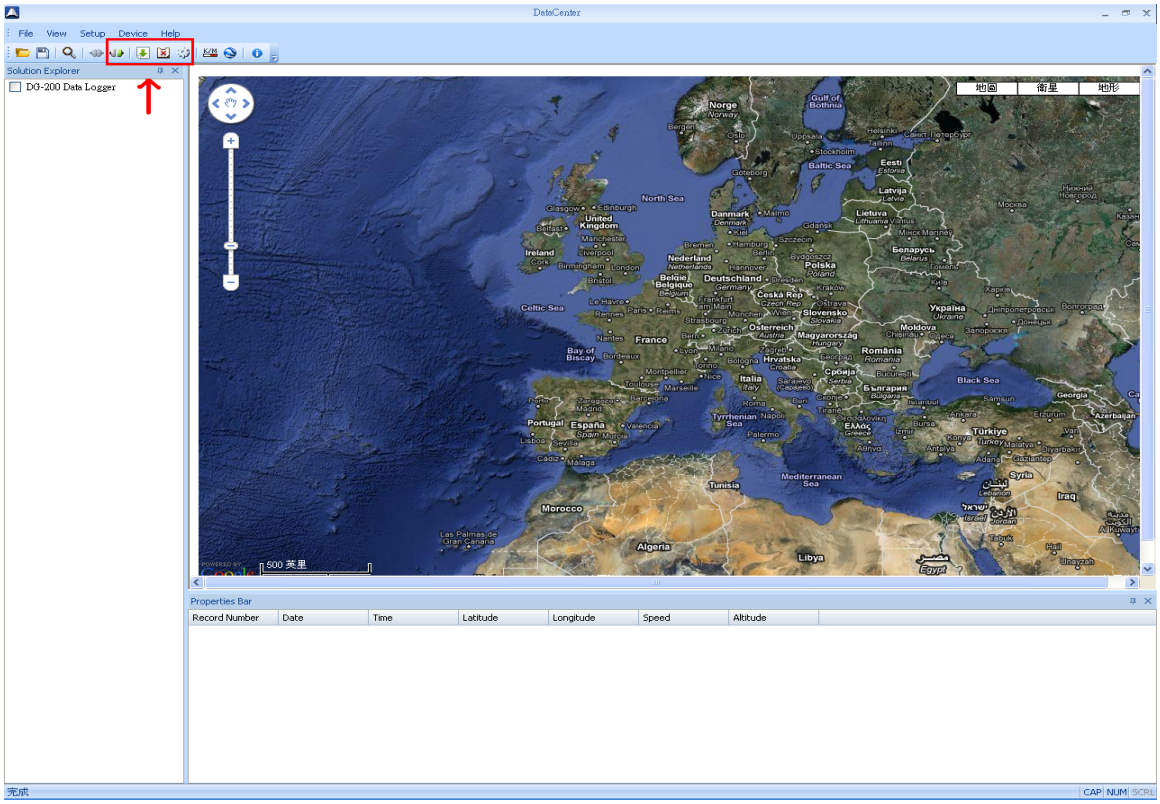


6. You could check the COM port at Start → Settings → Control Panel → System → Hardware → Device Manager



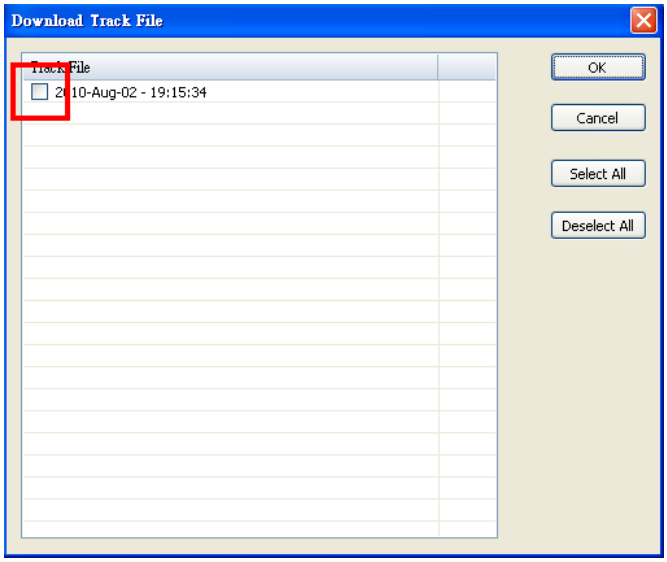
7. Click the icon on tool bar.

8. When DG-200 is connecting to the PC utility, the tool bar would be displayed as . If tool bar does not be shown as the screenshot, please check if the COM port is correct at “**Device Manager**.”

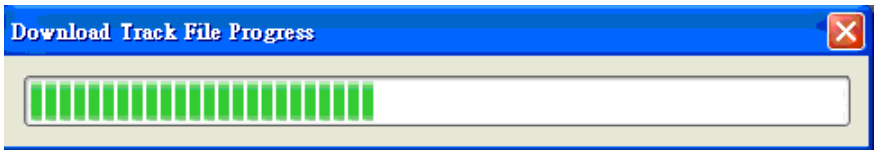


4-3 Downloading and setting the traveled path data

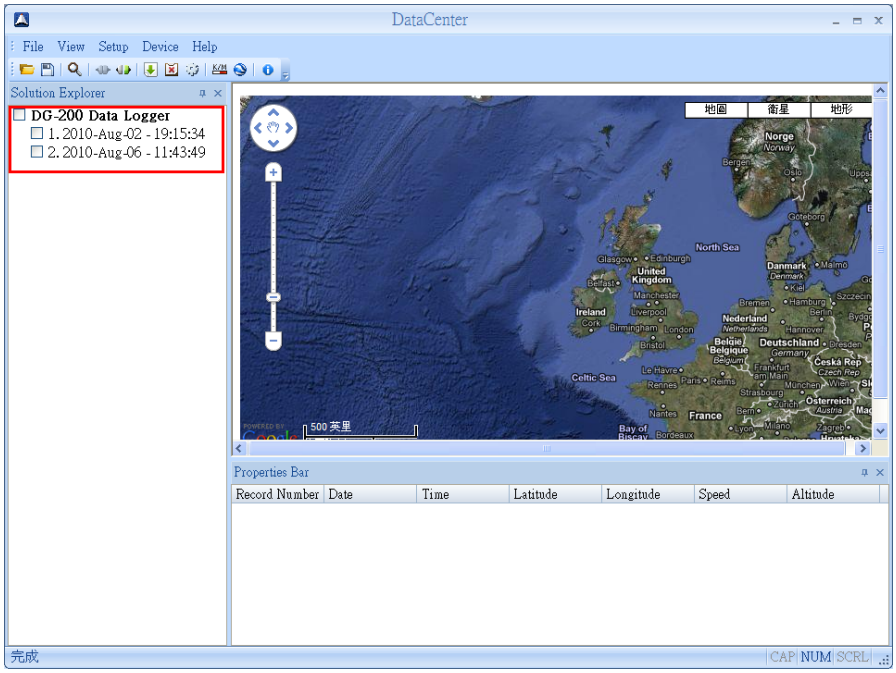
1. Connect PC and DG-200 according to 4-2.
2. Click on icon
3. Select the traveled path data that you’d like to download and then click on “OK” button.



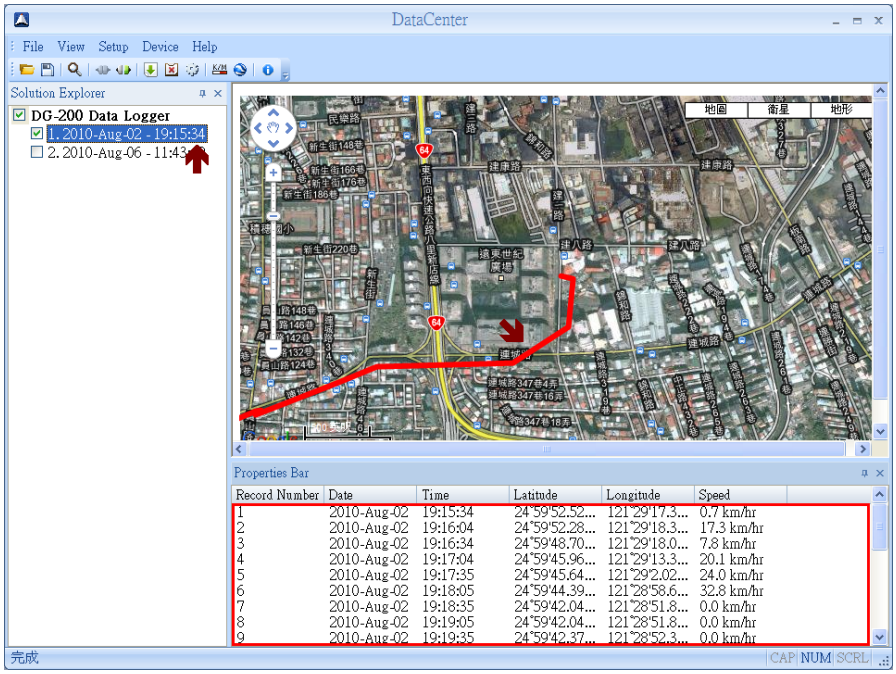
4. Downloading the traveled path data.



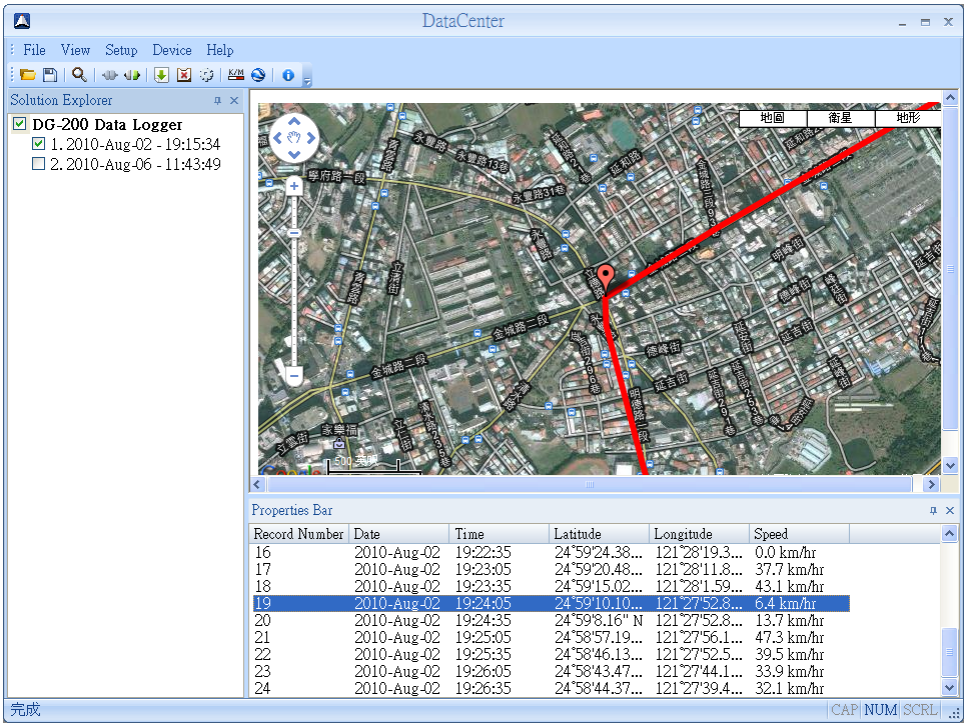
5. The downloaded data would be displayed on the traveled path data list. Each data would be displayed the date and the starting time.



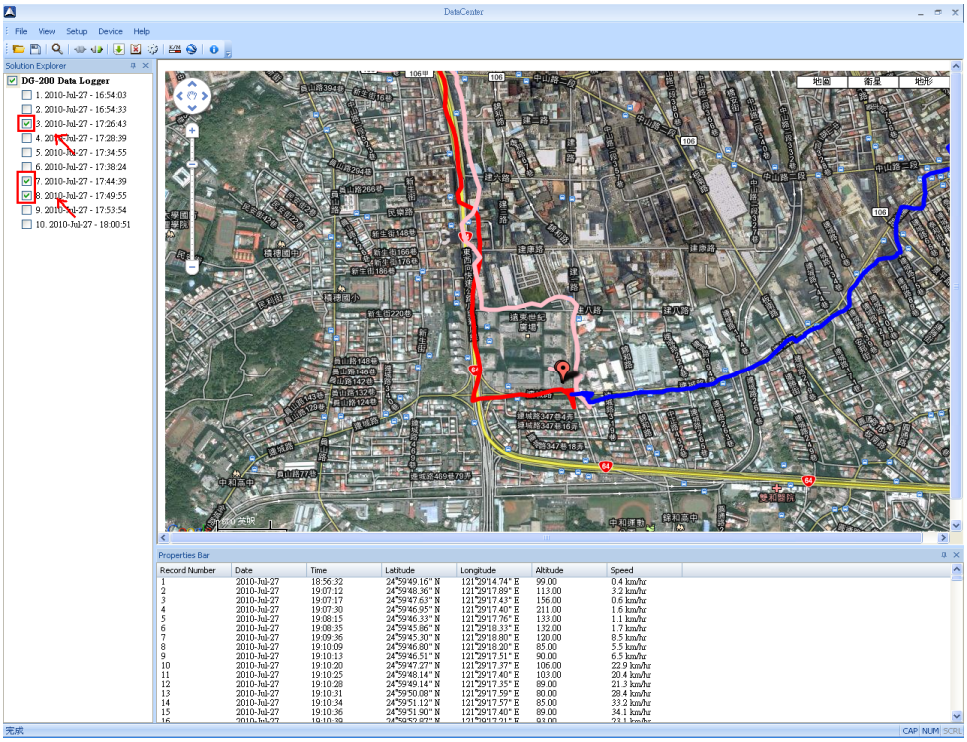
6. You could display the traveled path data on Google Map by selecting ☑ the data in the traveled path list. If you double click the traveled path, Google Map would move to the starting point of that traveled path. The Traveled Path Information field would display all the recorded points. The points that are manually saved would be marked with



7. You could display any point on Google Map by click on that point in the traveled path information field. That point would be marked as on Google map. The manually saved points would be displayed on Google map at the same time.



8. You could select several traveled paths to display on Google map. The traveled paths would be marked by different colors. The points that are manually saved would be marked with

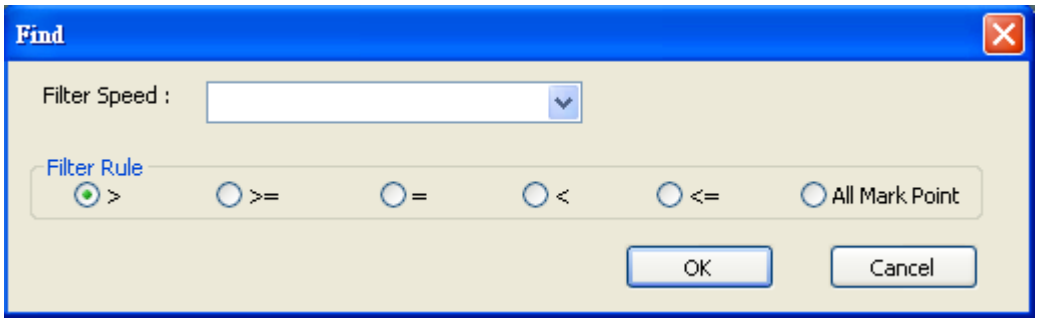


9. You could check the details of each point in the traveled path information field. The manually saved points would be marked with start signs.

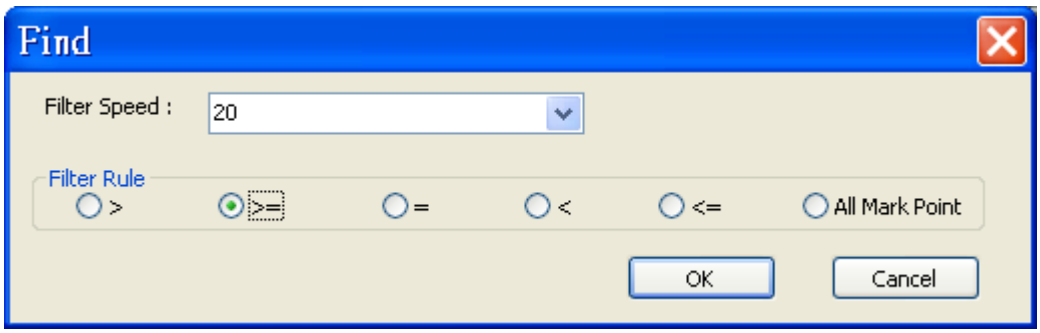
14	2010-Aug-02	19:22:05	24°59'24.57...	121°28'19.7...	0.0 km/hr
15*	2010-Aug-02	19:22:21	24°59'24.38...	121°28'19.3...	0.0 km/hr
16	2010-Aug-02	19:22:35	24°59'24.38...	121°28'19.3...	0.0 km/hr

4-4 Filter the Traveled Points by

1. Connect PC and DG-200 according to 4-2. And download the traveled path data according to 4-3.
2. Click on the icon on tool bar.
3. You would see the screenshot as below.



4. Enter the speed you'd like to filter and choose the filter rule. Then you could get the points of your setting. You could view all the manually saved points by select All Mark Point

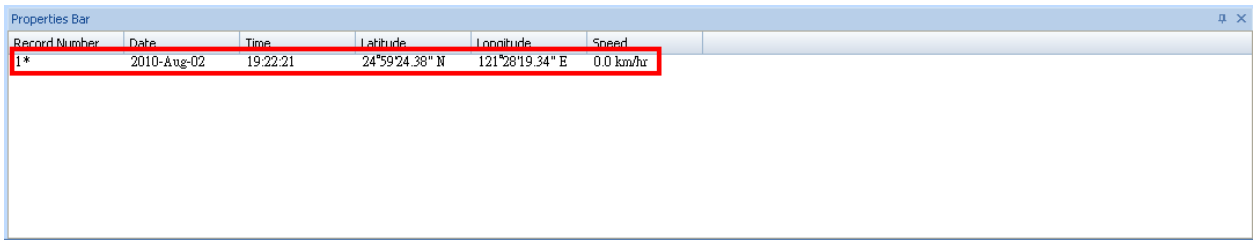


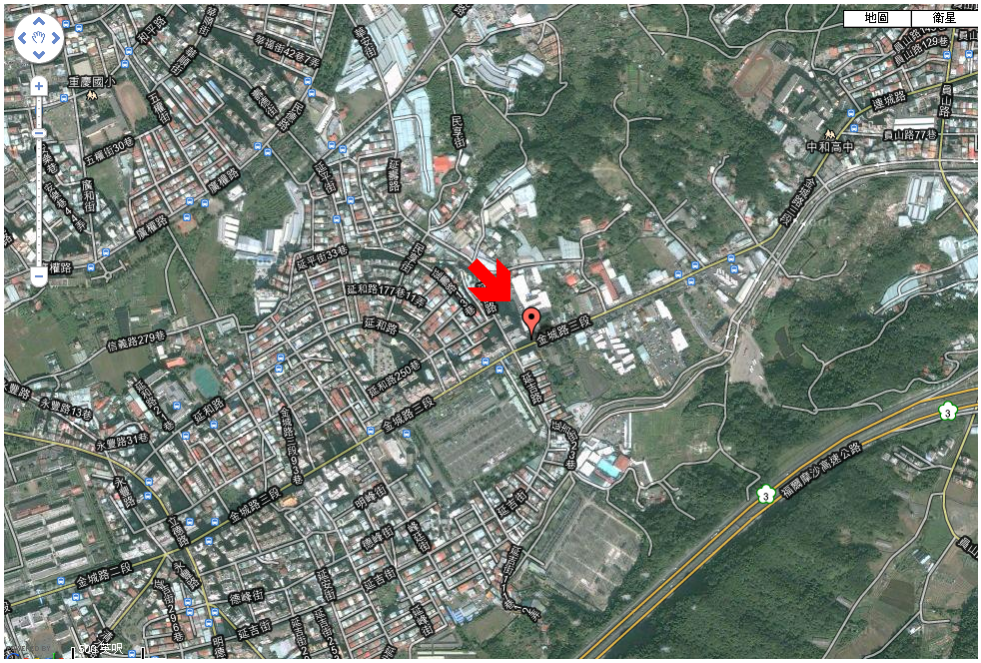
5. Corresponding data.

Record Number	Date	Time	Latitude	Longitude	Speed
1	2010-Aug-02	19:17:04	24°59'45.96...	121°29'13.3...	20.1 km/hr
2	2010-Aug-02	19:17:35	24°59'45.64...	121°29'2.02...	24.0 km/hr
3	2010-Aug-02	19:18:05	24°59'44.39...	121°28'58.6...	32.8 km/hr
4	2010-Aug-02	19:20:35	24°59'39.16...	121°28'43.6...	37.0 km/hr
5	2010-Aug-02	19:21:05	24°59'30.12...	121°28'34.7...	45.4 km/hr
6	2010-Aug-02	19:21:35	24°59'25.86...	121°28'23.6...	25.6 km/hr
7	2010-Aug-02	19:23:05	24°59'20.48...	121°28'11.8...	37.7 km/hr
8	2010-Aug-02	19:23:35	24°59'15.02...	121°28'1.59...	43.1 km/hr
9	2010-Aug-02	19:25:05	24°58'57.19...	121°27'56.1...	47.3 km/hr

6. Select

would display all the manually saved points.

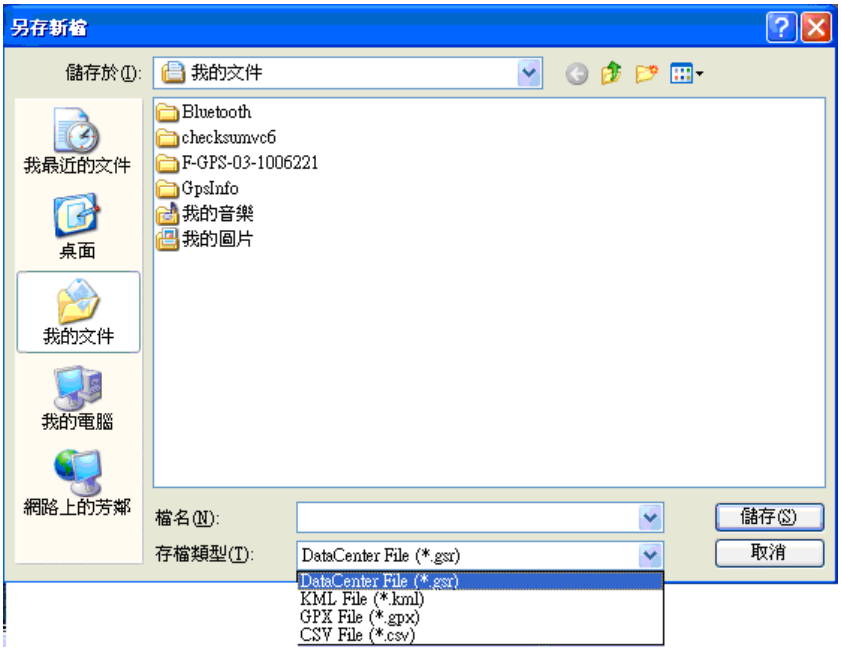




4-5 Save / Read the Traveled Path Data

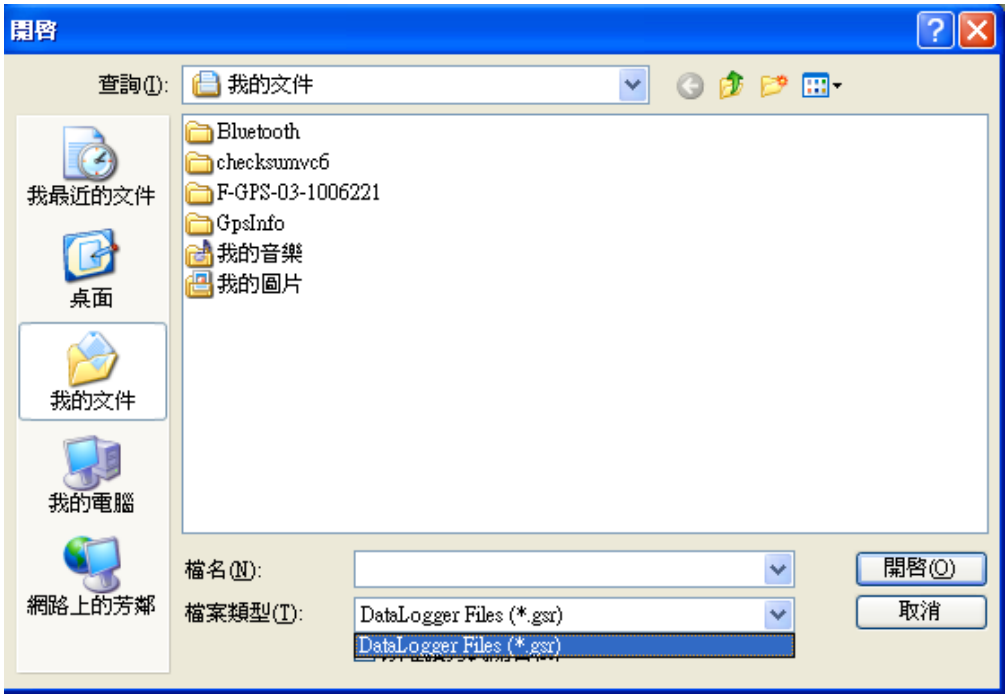
You could save the traveled path data by clicking on icon or selecting **[File]** → **[Save As]**

You could saved the data in the format of *.gsr or *.kml or *gpx or *.csv.



You could open the saved traveled path data by clicking on icon on tool bar or selecting **[File] → [Open]**. You could only open the file of *.gsr format.

.

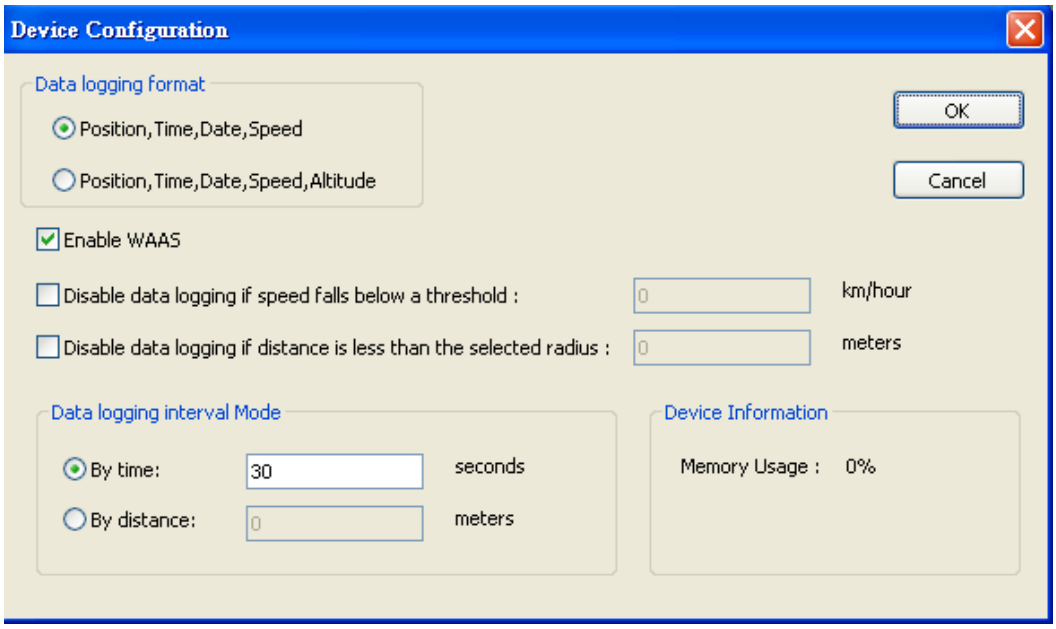


4-6 Setting the Traveled Points

Connect DG-200 and PC according to the steps in 4-2.

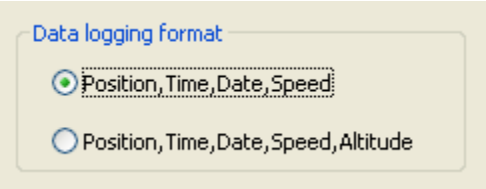
Click on icon on tool bar or select **[Device] → [Setting…]**

You would see the screenshot as below.



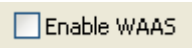
Function description:

Data logging format (choose the required travelled point's detail for recording)

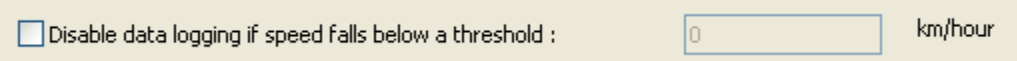


Position Time Date Speed

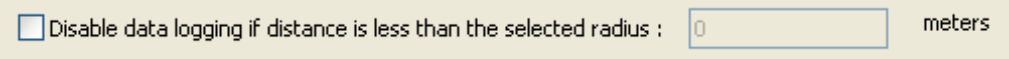
Position Time Date Speed Altitude



Enable/ disable the WAAS function

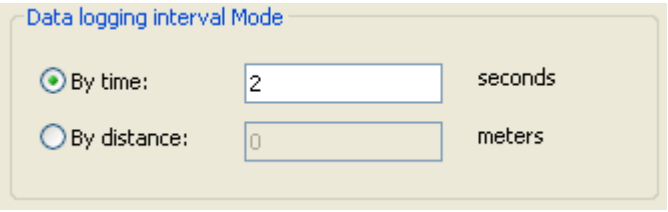


Do not record the travelled path when speed is lower than the your setting



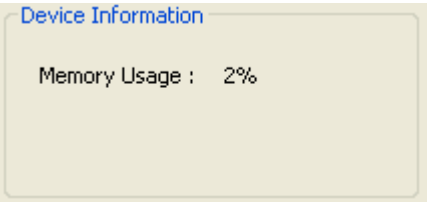
Do not record the travelled path when travelled distance is less than your setting

Data logging interval Mode (Recording the travelled path according to time or distance)



By time, (Recording the travelled path according to time)

By distance, (Recording the travelled path according to distance)



Show the present memory usage status. DG-200 could not record any points when usage is up to 100%.

4-7 DG-200 PC Utility Auto update

DG-200 PC Utility had auto update function. When your PC/NB is connected to internet, DG-200 PC Utility will be search and download the newest program to install.

Chapter 5: Troubleshooting

1.	It requires more time to get GPS fix while DG-200 is moving. Please keep DG-200 stationary when powering on DG-200. This will shorten the time to get a GPS fix.
2.	Keep DG-200 away from excessive moisture and extreme temperatures. Do not leave it in the closed vehicles or put it under direct sunlight for extended periods of time. Excessive moisture and extreme temperatures may damage the DG-200.
3.	If DG-200 could not be powered on, please check if it has power by charging it.
4.	If you could not downloading the traveled data and setting of DG-200, please check if USB driver is installed, is it powered on, and the USB cable is well connected.
5.	When blue LED is on, please check if the memory flash is full. (the size is 4M bytes.)
6.	When red LED is on, please charge it instantly.

Appendix 1：FCC Notices

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference， and

(2) This device must accept any interference received， including interference that may cause undesired operation.

FCC RF Exposure requirements:

This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

NOTE: THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.